

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

## **In th Claims**

1. (Previously Presented): A method of forming integrated circuitry, comprising:

chemical vapor depositing a silicon carbide comprising layer over a semiconductor substrate at a temperature of no greater than 500°C; and

plasma etching through at least a portion of the silicon carbide comprising layer received over the semiconductor substrate using a gas chemistry comprising oxygen and hydrogen.

2. (Original): The method of claim 1 comprising conducting the chemical vapor depositing at a temperature of no greater than 200°C.

3. (Original): The method of claim 1 wherein the substrate is not exposed to a temperature greater than 500°C between the depositing and the etching.

4. (Original): The method of claim 1 wherein the substrate is not exposed to a temperature greater than the highest temperature during the depositing between the depositing and the etching.

5. (Original): The method of claim 1 wherein the chemical vapor depositing is plasma enhanced.

6. (Original): The method of claim 1 wherein the oxygen is derived from the group consisting of O<sub>2</sub>, O<sub>3</sub>, NO<sub>x</sub>, CO, CO<sub>2</sub>, and mixtures thereof.

7. (Original): The method of claim 1 wherein the hydrogen is derived from the group consisting of H<sub>2</sub>, NH<sub>3</sub>, CH<sub>4</sub>, and mixtures thereof.

8. (Original): The method of claim 1 wherein,  
the oxygen is derived from the group consisting of O<sub>2</sub>, O<sub>3</sub>, NO<sub>x</sub>, CO, CO<sub>2</sub>, and mixtures thereof; and  
the hydrogen is derived from the group consisting of H<sub>2</sub>, NH<sub>3</sub>, CH<sub>4</sub>, and mixtures thereof.

9. (Original): The method of claim 1 wherein the oxygen is derived at least in part from O<sub>2</sub> and the hydrogen is derived at least in part from NH<sub>3</sub>.

10. (Original): The method of claim 1 wherein the plasma etching is conducted within a chamber, plasma during the plasma etching being first formed within the chamber.

11. (Original): The method of claim 1 wherein the plasma etching is conducted within a chamber, plasma during the plasma etching being first formed remote from the chamber.

12. (Original): A semiconductor processing method, comprising:  
chemical vapor depositing a silicon carbide comprising layer over a semiconductor substrate at a temperature of no greater than 500°C;  
forming an insulative material over the silicon carbide comprising layer;  
etching a contact opening into the insulative material to proximate the silicon carbide comprising layer; and  
plasma etching within the contact opening through the silicon carbide comprising layer using a gas chemistry comprising oxygen and hydrogen to extend the contact opening through the silicon carbide comprising layer and under conditions which etches the silicon carbide comprising layer at a rate at least twice that of any etching of the insulative material.

13. (Currently Amended): The method of claim 12 comprising plasma etching under conditions which ~~etches~~ etch the silicon carbide comprising layer at a rate at least three times that of any etching of the insulative material.

14. (Currently Amended): The method of claim 12 comprising plasma etching under conditions which ~~etches~~ etch the silicon carbide comprising layer at a rate at least four times that of any etching of the insulative material.

15. (Original): The method of claim 12 wherein the etching to proximate the silicon carbide comprising layer exposes the silicon carbide comprising layer, and using the silicon carbide comprising layer as an etch stop during said etching to proximate the silicon carbide comprising layer.

16. (Original): The method of claim 12 comprising conducting the chemical vapor depositing at a temperature of no greater than 200°C.

17. (Original): The method of claim 12 wherein the substrate is not exposed to a temperature greater than 500°C between the depositing and the etching.

18. (Original): The method of claim 12 wherein the substrate is not exposed to a temperature greater than the highest temperature during the depositing between the depositing and the etching.

19. (Original): The method of claim 12 comprising conducting the chemical vapor depositing at a temperature of no greater than 250°C, and wherein the substrate is not exposed to a temperature greater than 250°C between the depositing and the etching.

20. (Original): The method of claim 12 wherein the oxygen is derived from the group consisting of O<sub>2</sub>, O<sub>3</sub>, NO<sub>x</sub>, CO, CO<sub>2</sub>, and mixtures thereof.

21. (Original): The method of claim 12 wherein the hydrogen is derived from the group consisting of  $H_2$ ,  $NH_3$ ,  $CH_4$ , and mixtures thereof.

22. (Original): The method of claim 12 wherein the oxygen is derived at least in part from  $O_2$  and the hydrogen is derived at least in part from  $NH_3$ .

23. (Original): The method of claim 12 wherein the plasma etching is conducted within a chamber, plasma during the plasma etching being first formed within the chamber.

24. (Original): The method of claim 12 comprising after the plasma etching, forming conductive material within the contact opening.

Claims 25-35 (Canceled).

36. (Previously Presented): A semiconductor processing method, comprising:

chemical vapor depositing a silicon carbide comprising layer over a semiconductor substrate at a temperature of no greater than 500°C;

forming an insulative material over the silicon carbide comprising layer;

forming resist over the insulative material;

forming a mask opening within the resist to proximate the insulative layer;

etching a contact opening into the insulative material through the mask opening to proximate the silicon carbide comprising layer; and

with the resist on the substrate, a) plasma etching within the contact opening through the silicon carbide comprising layer using a gas chemistry comprising oxygen and hydrogen to extend the contact opening through the silicon carbide comprising layer and under conditions which etch the silicon carbide comprising layer at a rate at least twice that of any etching of the insulative material, and b) plasma etching all resist from the substrate, said plasma etching in "a)" and in "b)" being conducted in an etching step common to "a)" and "b)".

37. (Original): The method of claim 36 wherein the insulative material comprises SiO<sub>2</sub>.

38. (Original): The method of claim 36 wherein the etching to proximate the silicon carbide comprising layer exposes the silicon carbide comprising layer, and using the silicon carbide comprising layer as an etch stop during said etching to proximate the silicon carbide comprising layer.

39. (Original): The method of claim 36 comprising conducting the chemical vapor depositing at a temperature of no greater than 200°C.

40. (Original): The method of claim 36 wherein the substrate is not exposed to a temperature greater than 500°C between the depositing and the etching.

41. (Original): The method of claim 36 wherein the substrate is not exposed to a temperature greater than the highest temperature during the depositing between the depositing and the etching.

42. (Original): The method of claim 36 comprising conducting the chemical vapor depositing at a temperature of no greater than 250°C, and wherein the substrate is not exposed to a temperature greater than 250°C between the depositing and the etching.

43. (Original): The method of claim 36 wherein the oxygen is derived from the group consisting of O<sub>2</sub>, O<sub>3</sub>, NO<sub>x</sub>, CO, CO<sub>2</sub>, and mixtures thereof.



44. (Original): The method of claim 36 wherein the hydrogen is derived from the group consisting of  $H_2$ ,  $NH_3$ ,  $CH_4$ , and mixtures thereof.

45. (Original): The method of claim 36 wherein the plasma etching is conducted within a chamber, plasma during the plasma etching being first formed within the chamber.

46. (Original): The method of claim 36 comprising after the plasma etching, forming conductive material within the contact opening.

47. (Original): The method of claim 36 wherein the resist comprises photoresist.

48. (New): The method of claim 1 wherein the oxygen is derived from a gas comprising  $O_2$ .

49. (New): The method of claim 1 wherein the oxygen is derived from a gas comprising  $O_3$ .

50. (New): The method of claim 1 wherein the oxygen is derived from a gas comprising  $NO_x$ .

51. (New): The method of claim 1 wherein the oxygen is derived from a gas comprising CO.

52. (New): The method of claim 1 wherein the oxygen is derived from a gas comprising CO<sub>2</sub>.

53. (New): The method of claim 1 wherein the hydrogen is derived from a gas comprising H<sub>2</sub>.

54. (New): The method of claim 1 wherein the hydrogen is derived from a gas comprising NH<sub>3</sub>.

55. (New): The method of claim 1 wherein the hydrogen is derived from a gas comprising CH<sub>4</sub>.

56. (New): The method of claim 12 wherein the plasma etching is conducted within a chamber, plasma during the plasma etching being first formed remote from the chamber.

57. (New): The method of claim 12 wherein the insulative material comprises SiO<sub>2</sub>.

58. (New): The method of claim 12 wherein the oxygen is derived from a gas comprising  $O_2$ .

59. (New): The method of claim 12 wherein the oxygen is derived from a gas comprising  $O_3$ .

60. (New): The method of claim 12 wherein the oxygen is derived from a gas comprising  $NO_x$ .

61. (New): The method of claim 12 wherein the oxygen is derived from a gas comprising  $CO$ .

62. (New): The method of claim 12 wherein the oxygen is derived from a gas comprising  $CO_2$ .

63. (New): The method of claim 12 wherein the hydrogen is derived from a gas comprising  $H_2$ .

64. (New): The method of claim 12 wherein the hydrogen is derived from a gas comprising  $NH_3$ .

65. (New): The method of claim 12 wherein the hydrogen is derived from a gas comprising  $CH_4$ .

66. (New): The method of claim 36 wherein the plasma etching is conducted within a chamber, plasma during the plasma etching being first formed remote from the chamber.

67. (New): The method of claim 36 comprising plasma etching under conditions which etch the silicon carbide comprising layer at a rate at least three times that of any etching of the insulative material.

68. (New): The method of claim 36 comprising plasma etching under conditions which etch the silicon carbide comprising layer at a rate at least four times that of any etching of the insulative material.

69. (New): The method of claim 36 wherein the oxygen is derived from a gas comprising O<sub>2</sub>.

70. (New): The method of claim 36 wherein the oxygen is derived from a gas comprising O<sub>3</sub>.

71. (New): The method of claim 36 wherein the oxygen is derived from a gas comprising NO<sub>x</sub>.

72. (New): The method of claim 36 wherein the oxygen is derived from a gas comprising CO.

73. (New): The method of claim 36 wherein the oxygen is derived from a gas comprising CO<sub>2</sub>.

74. (New): The method of claim 36 wherein the hydrogen is derived from a gas comprising H<sub>2</sub>.

75. (New): The method of claim 36 wherein the hydrogen is derived from a gas comprising NH<sub>3</sub>.

76. (New): The method of claim 36 wherein the hydrogen is derived from a gas comprising CH<sub>4</sub>.